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Facility Safety Plan CMLS-410r1 Change Memo

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Date: September 12, 2006

Facility Safety Plan CMS Complexes

[X] Major Change [ ] Minor Change

TO: Distribution

FROM: Hazards Control, ES&H Team 2

SUBJECT: Facility Safety Plan CMS Complexes – Major Change

This Change Memo serves to revise Facility Safety Plan CMS Complexes, effective September 30, 2006 as follows:

1. **Section 1.2, B151 Complex entire paragraph has been revised as follows:**

The B151 Complex includes B151, B152, and B154. Each of these facilities is considered a separate facility for the purposes of hazard classification and chemical/radiological inventory. B151 and 154 provide office, laboratory, and electronics shop facilities for laboratory operations in a broad range of chemical, biological, and radiochemical research. B152 is a cement block structure located on the west side of B151 that provides storage.

2. **Section 3.1.1, Chemical Inventory Tracking and Control, 3rd paragraph has been revised as follows:**

NOTE: The Tier 2 Safety Basis Document for the B151 Complex administratively separates the three facilities in the B151 Complex (B151, B152, and B154) to allow each facility to maintain separate and independent chemical inventories/limits.

3. **Section 3.2, Safety Basis Envelope, Facility Hazard Classification and Principal Controls, 1st and 2nd paragraph are revised as follows:**

Document 3.1, "Nonnuclear Safety Basis Program" of the *ES&H Manual* specifies the methodology used to determine the inventory limits and controls for chemical, radiological, and explosive inventories for B132N, B151 Complex, and B235. The older Document 3.1, "Safety Analysis Program" of the *ES&H Manual* specifies the methodology used for B241. Implementation of these controls is coordinated through the ADFM. An IWS is required for new or changed operations not commonly performed by the public (i.e. WAL [Work Authorization Level] B and greater).

The safety basis envelope for the CMS Complex facility operations is defined by Hazard Analysis Reports (HAR) and Tier 2 and Tier 3 Safety Basis Documents (see Table 3-1). The SBD for the B151 Complex administratively segments that Complex in terms of radiological and chemical inventory allowing each facility (B151, B152, and B154) to maintain separate and individual chemical and radiological inventories.

4. **Section 3.2, Table 3-1:** *Safety Basis Summary for CMS Complexes*, **2nd row has been revised as follows:**

Facility	Safety Basis Document	Hazard Classification
151, 152, and 154	Tier 2 Safety Basis Document for the B151 Complex (B151, B152, and B154), Rev 0, July 13, 2006	Low Hazard

5. **Section 3.2.1.1, Key Safety Limits, Table 3-2:** *Key Chemical Limits Summary for CMS Complexes*, **has been revised as follows:**

Facility	Chemical Name	Safety Basis Limit (lbs/kg)	FSP (administrative) Limit (lbs/kgs)
132N	All	Lesser of Q-List values Q1(100 meters) or Q0 (200 meters)	75% of Safety Basis Limit
151	Chlorine trifluoride gas	15 lbs/6.8 kg	11.25 lbs / 5.1 kg
151	Sulfur Dioxide gas	11.4 lbs/5.2 kg Restricting Flow Orifice less than 0.031" is required for cylinders with concentrations greater than 10% by weight.	8.55 lbs / 3.9 kg
151	All other chemicals	Lesser of Q-List values Q1(100 meters) or Q0 (300 meters)	75% of Safety Basis Limit
151	Liquid Nitrogen	39,600 lbs/18,000 kg	29,700 lbs/ 13,500 kg
152	All	Lesser of Q-List values Q1(100 meters) or Q0 (300 meters)	75% of Safety Basis Limit
154	All	Lesser of Q-List values Q1(100 meters) or Q0 (300 meters)	75% of Safety Basis Limit

Facility	Chemical Name	Safety Basis Limit (lbs/kg)	FSP (administrative) Limit (lbs/kgs)
235	All	Lesser of Q-List values Q1(100 meters) or Q0 (600 meters)	75% of Safety Basis Limit for the total facility inventory and less than 1 pound of Be Powder for the entire facility.
241	Mercury	563 lbs / 256 kg	282 lbs / 128 kg
241	All other chemicals	29 CFR 1910.119 TQ or 40 CFR 355 TPQ whichever is less	75% of Safety Basis Limit

6. **Section 3.2.1.2, Key Explosive Limits, Table 3-3:** ***Key Explosive Limits Summary for CMS Complexes,*** **has been revised as follows:**

Facility / Room	UNO Hazard Class/Division	Quantity Allowed in Operations [a]	Total Quantity Allowed [a,b]
132N / 1901	1.1 and 1.5	Less than or equal to 10 grams	1000 grams
132N / 1903	1.1 and 1.5	Up to 10 grams low-risk contact operations	10 grams
132N / 2695	1.1 and 1.5	Sum of all operations less than or equal to 5 grams.	50 grams
132N / other labs	1.1 and 1.5	Less than or equal to 1 gram	Less than or equal to 1 gram
151 / any lab	1.1 and 1.5	Each operation limited to less than 10 mg of non-primary explosives and less than 1 mg of primary explosives. Multiple operations allowed per room.	Less than or equal to 1 gram
152 / any lab	1.1 and 1.5	Each operation limited to less than 10 mg of non-primary explosives and less than 1 mg of primary explosives. Multiple operations allowed per room.	Less than or equal to 1 gram

Facility / Room	UNO Hazard Class/Division	Quantity Allowed in Operations [a]	Total Quantity Allowed [a,b]
154 / any lab	1.1 and 1.5	No explosives work is allowed.	None
235 / any lab	1.1 and 1.5	Sum of all operations limited to less than or equal to 1 gram.	Less than or equal to 1 gram
241 / any lab	1.1 and 1.5	Less than or equal to 10 mg	Less than or equal to 10 mg

7. **Section 3.2.1.4, Key Biological Limits, 2nd paragraph has been added as follows:**

Select Agents (as defined in Document 13.6 of the *LLNL ES&H Manual*) are not permitted in B151, B152, or B154. The only biological operation allowed in B152 is the storage of biowaste.

8. **Section 3.3, Table 3-4. Building Safety Features BSF, has been updated as follows:**

Facility	Description	Institutional
All (except B152)	Fire detection and alarm	X
All (except B152)	Fire suppression	X
B132N	B132N separation of the utilities infrastructure and the two-hour (minimum) fire-rated separation between the CMS and DNT areas	
B132N	Non-propagating explosive storage arrays	
B151	High Vacuum Fluorination System reaction vessel manifold	

9. **Section 3.4.1.4, Egress/Fire Safety/Housekeeping, 1st paragraph has been revised as follows:**

All means of egress, as defined in Document 22.5, "Fire" and 11.2, "Hazards --General and Miscellaneous" of the *ES&H Manual*, (aisle ways, exit ways, corridors, stairs, etc.) shall be kept clear of storage, obstructions, and debris. Fire doors (between building segments and in stairwells) shall be properly labeled and never propped open. General housekeeping practices shall be applied to ensure fire safety and to maintain clear egress routes. In the event of a power outage, personnel may become trapped in the building elevators. In a power outage, remain calm. An emergency light will come on in the elevator, and the bell alarm system can be activated to summon help. The battery power should last about one hour.

10. **Section 4.2.2, B132N Non-propagating explosives storage arrays and 4.2.3, B151 High Vacuum Fluorination System reaction vessel manifold have been added as follows:**

4.2.2 B132N Non-propagating explosives storage arrays

Non-propagating storage arrays for explosive materials have been identified as BSF for B132N in order to prevent the accidental detonation of one sample from causing a detonation of other samples. Acquisition of non-propagating arrays must be approved in advance by the ADFM and an Explosives Safety Engineer. There are no maintenance or testing requirements for non-propagating arrays.

4.2.3 B151 High Vacuum Fluorination System reaction vessel manifold

The High Vacuum Fluorination System (HVFS) reaction vessel shall be maintained in a configuration consistent with the specifications in Engineering Safety Note LLSN04-503-AA, Reaction Vessel for High Vacuum Fluorination System. Proposed changes to the Engineering Safety Note shall be reviewed and approved according to the requirements of the Engineering Design Safety Standards, Chapter D: ME, EE, and Eng. Dir. Safety Notes.

11. Section 6.1, Introduction, 3rd paragraph has been added as follows:

The FPOC is responsible for maintaining the Self Help Shed in their area.

12. Section 6.1.1, Credible Emergencies, 1st sentence has been revised as follows:

The CMS Complex Hazard Analysis Reports (HAR) and Tier 1 and Tier 2 SBDs identify B132N, B151, B152, B154, B235 and B241 as Low Hazard, Radiological Facilities.

13. Section 7.0, References, 7.13, 7.14, 7.15, 7.16 and 7.17 have been changed as follows:

7.13 *B241 Hazard Analysis Report, January 2001*

7.14 *Tier 2 Safety Basis Document for B132N, July 28,2006, UCRL-AR-223227*

7.15 *Tier 2 Safety Basis Document for B235, July 28, 2006, UCRL-AR-223230*

7.16 *Tier 2 Safety Basis Document for B151 Complex (B151, B152, and B154), July 13, 2006*

7.17 *Engineering Design Safety Standards, Chapter D: ME, EE, and Eng. Dir. Safety Notes*

14. Appendix C Radiological Operations, Section 2.4, "Administrative Control Levels", 3rd paragraph has been added as follows:

Radioactive material may be excluded from the administrative inventory summation of equation C-3 at the discretion of the ADFM and only if it meets the exclusion eligibility criteria specified in attachment 1 of DOE-STD-1027-92. These criteria include:

a. Material is contained within a sealed source capsule engineered to meet the special form testing specified by the Department of Transportation (DOT) in 49 CFR 173.469 or testing specified by ANSI N43.6 "Sealed Radioactive Source Categorization,"

   Sealed sources lacking documentation that the source or prototypes of the source have been tested and have passed the tests specified by DOT or ANSI are ineligible for exclusion and are included in the facility administrative radiological inventory summation, or

b. Material is stored within a DOT Type B shipping container with current certificates of compliance and the materials stored are authorized by the certificate.

Materials contained in DOT Type B shipping containers lacking current Certificates of Compliance are ineligible for exclusion and are included in the facility administrative radiological inventory summation.

c. Certified sealed sources excluded from the facility inventory comply with the LLNL sealed source control policy (*ES&H Manual*, Document 20.2). This includes periodic inventories and leak checks.

Sources failing periodic leak checks are no longer eligible for exclusion. They are removed from service and included in the facility administrative radiological inventory summation of equation C-3. Radioactive materials that have been excluded from the administrative inventory ARE NOT excluded from the operational inventory summation of equation C-1.